

Web-based educational tool to understand the state change of water through molecular dynamics simulation

Tadashi Akamatsu[1]; Shin-ichi Kawakami[2]; Katsuyuki Kawamura[3]

[1] Fac. Education, Kochi Univ; [2] Fac. Educ. Gifu Univ.; [3] Earth and Planetary Sci., Tokyo Inst. Technology

<http://www.kochi-u.ac.jp/~akamatsu/>

A Web-based educational tool to understand the state change of water was developed. This tool reproduces the melting of ice and the evaporation of liquid water, showing the animation of H₂O molecules as the result of molecular dynamics simulation.

It has three characteristics:

(1) You can quickly access it through Internet:

<http://www.kochi-u.ac.jp/~akamatsu/H2O/> (Kochi University)

<http://chigaku.ed.gifu-u.ac.jp/chigakuhp/html/kyo/1/H2O/> (Gifu University)

(2) You can watch the animation through various kinds of computers: Windows machine, Macintosh, and Solaris Workstation.

(3) You can easily reach to the high spot of melting or evaporation.

In the animation of melting, the hexagonal arrangement of water molecules is observed to collapse. In the evaporation, the decrease in density (= increase in volume) is observed.